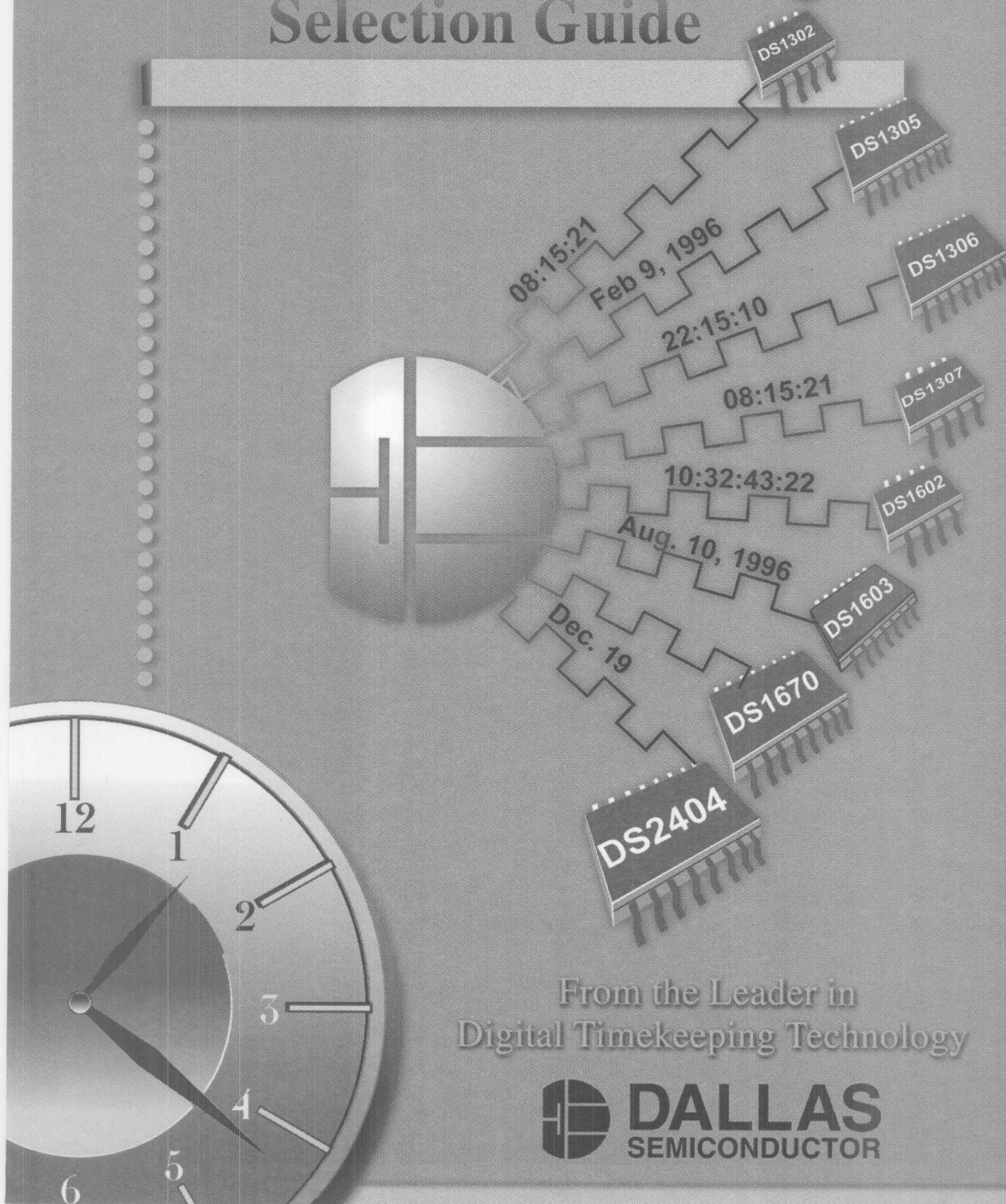


Serial Timekeeper

Selection Guide



From the Leader in
Digital Timekeeping Technology



DALLAS
SEMICONDUCTOR

Serial Timekeeper Selection Guide

Introduction

The Dallas Semiconductor Timekeeping product line offers the widest selection of real-time clock solutions available in the industry. Within the Timekeeping line, several product groups have grown to meet user needs: MUX-Bus, Watchdog, Timekeeping RAM, Phantom, and Serial Timekeepers.

This Selection Guide focusses on our Serial Timekeeping products. Serial Timekeepers are used in a variety of markets including commercial, medical, communications, and industrial. Applications range from real-time clock display for mobile phones to satellite search/acquisition in Global Positioning System (GPS) receivers.

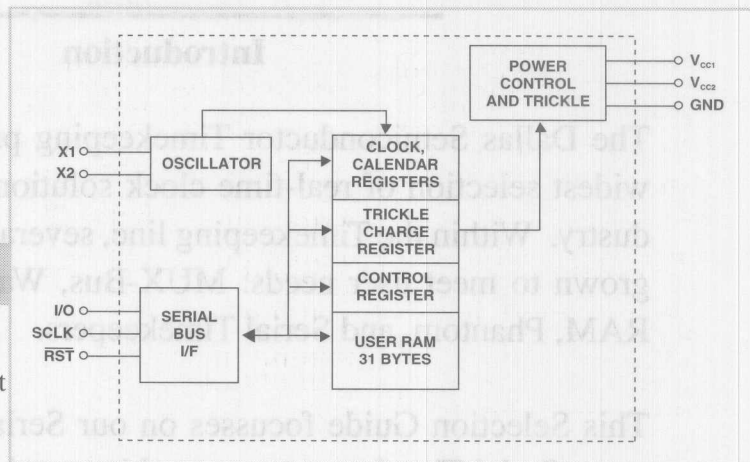
Device Family			
Device	Serial Interface	Bytes SRAM	Extra Features
DS1302	3-Wire	31	Trickle Charger
DS1305	3-Wire, SPI	96	Alarm Interrupt, Trickle Charger
DS1306	3-Wire, SPI	96	Alarm Interrupt, Trickle Charger, 1 Hz Clock Output, 32 kHz Clock Output
DS1307	2-Wire	58	Programmable Frequency Clock Output
DS1602	3-Wire	--	Interval Counter
DS1603	3-Wire	--	Interval Counter, 1 Hz Clock Output
DS1670	3-Wire	--	Alarm Interrupt, NV Controller, Watchdog, CPU Power-on Reset, 8-Bit A/D Converter
DS2404	1-Wire, 3-Wire	512	V _{CC} Cycle Counter, Interval Counter, Alarm Interrupt, 1 Hz Clock Output, V _{CC} Cycle Interrupt, Interval Interrupt

Serial Timekeeper Family

Device Overviews

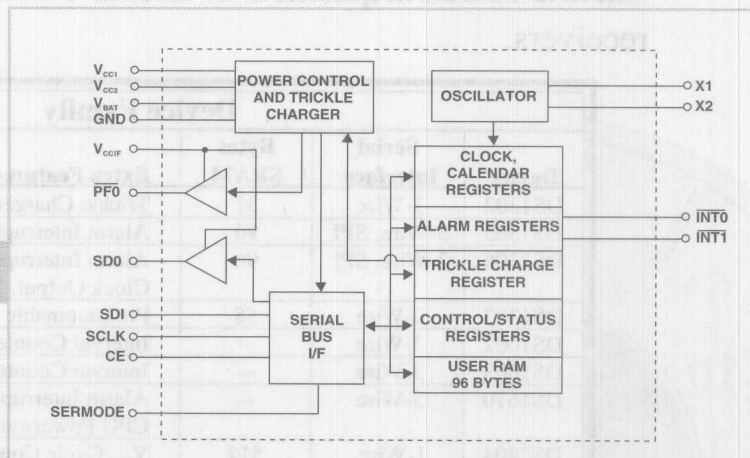
DS1302

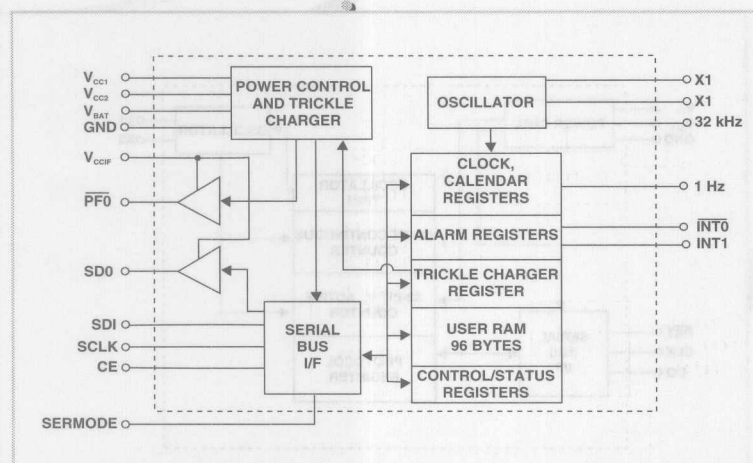
- BCD real-time clock
- Backup power source input
- Supercap trickle charger
- 31 bytes NV RAM
- 3-wire serial interface
- 2.0V to 5.5V operation
- 8-pin DIP, 8-pin SOIC



DS1305

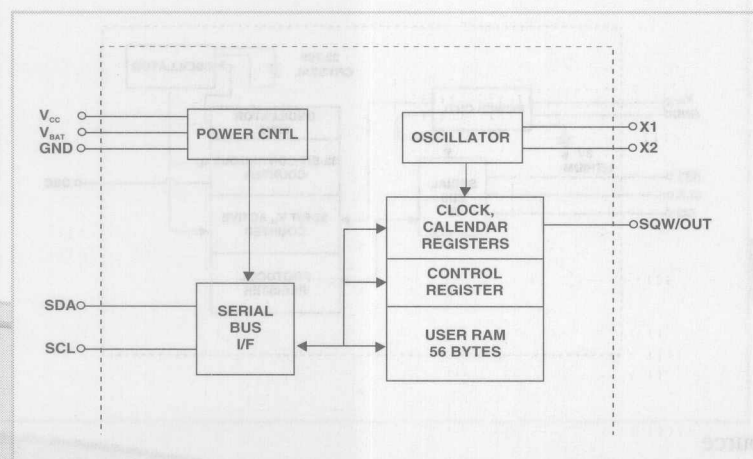
- BCD real-time clock
- Multiple power modes
- Supercap trickle charger
- Dual time-of-day alarms
- Power fail output
- 96 bytes NV RAM
- 3-wire or SPI interface
- 2.0V to 5.5V operation
- 16-pin DIP, 20-pin TSSOP





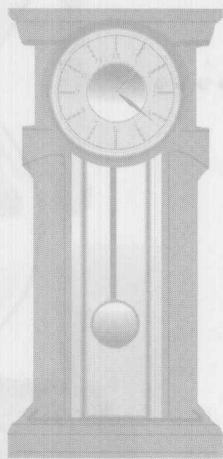
DS1306

- BCD real-time clock
- Multiple power modes
- Supercap trickle charger
- 32 kHz, 1 Hz clock outputs
- Dual time-of-day alarms
- Power fail output
- 96 bytes NV RAM
- 3-wire or SPI interface
- 2.0V to 5.5V operation
- 16-pin DIP, 20-pin TSSOP



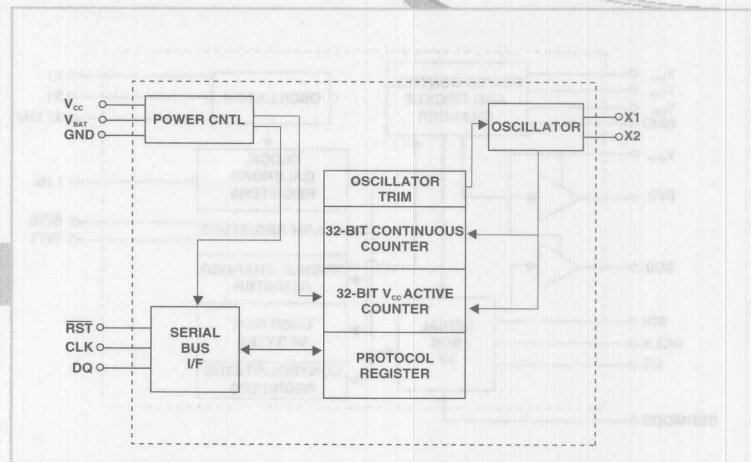
DS1307

- BCD real-time clock
- Backup power input
- 56 bytes NV RAM
- Programmable square wave output
- 5V operation
- 2-wire serial interface
- 8-pin DIP, 8-pin SOIC



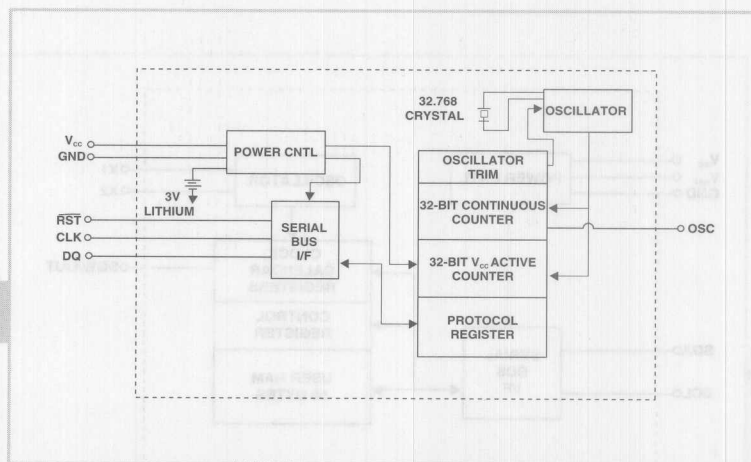
DS1602

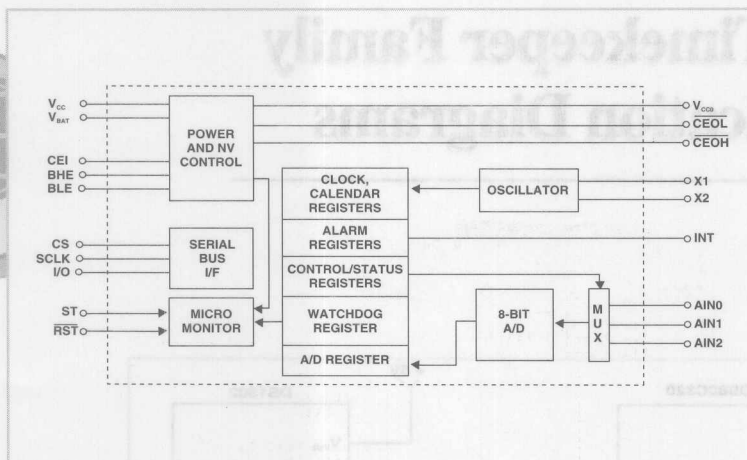
- Binary real-time clock
- Binary V_{cc} active counter
- 3-wire serial interface
- 5V operation
- 8-pin DIP, 8-pin SOIC



DS1603

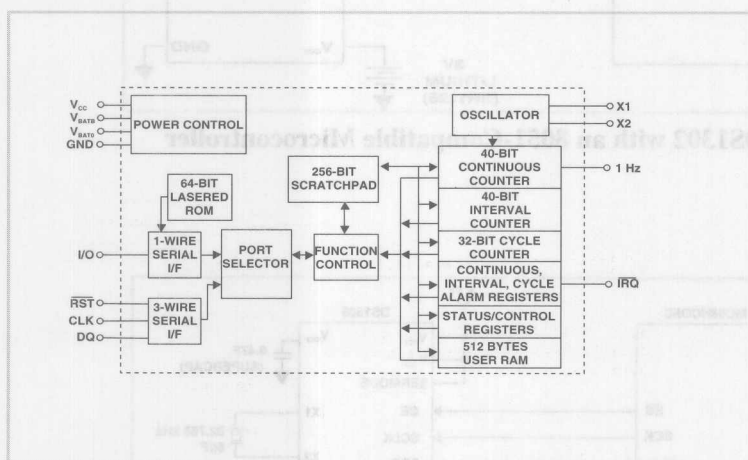
- Binary real-time clock
- Binary V_{cc} active counter
- 3-wire serial interface
- Embedded lithium energy source
- Embedded 32 kHz crystal
- 5V operation
- 7-pin SIP module





DS1670

- BCD real-time clock
- 3-channel A/D conversion
- Precision POR
- Watchdog timer
- Pushbutton reset
- External NV control
- Real-time clock alarm interrupt
- 3-wire serial interface
- Backup power input
- 3.3V operation
- 16-pin SOIC, 20-pin TSSOP

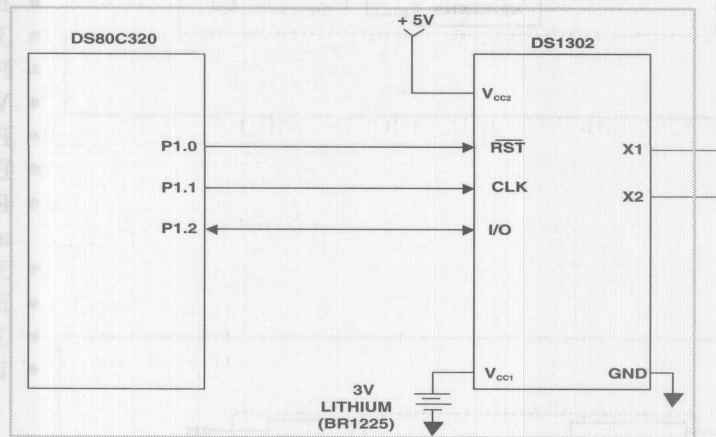


DS2404

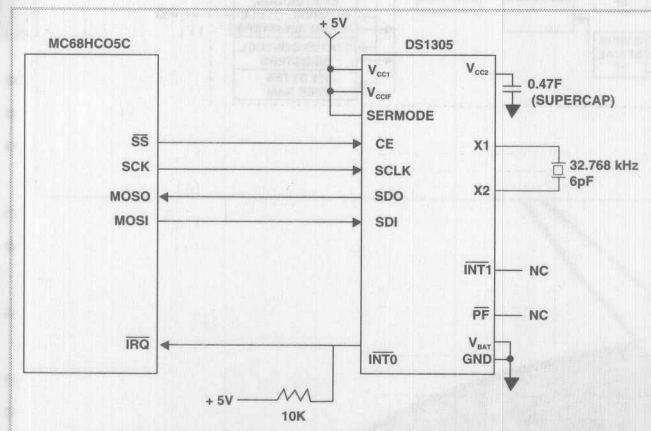
- Binary real-time clock
- Binary interval counter
- Interrupt from RTC, interval or cycle alarm
- Multiple power modes
- 64-bit lasered ROM (unique)
- 1-Wire™ and 3-wire interface
- 1 Hz clock output
- 512 bytes NV RAM
- 16-pin DIP, SOIC, SSOP

Serial Timekeeper Family

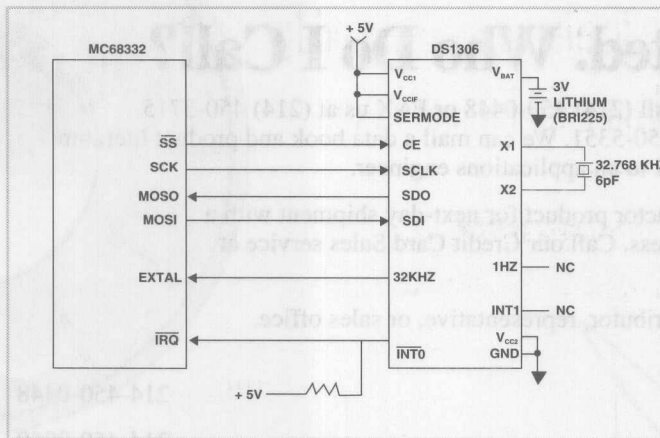
Application Diagrams



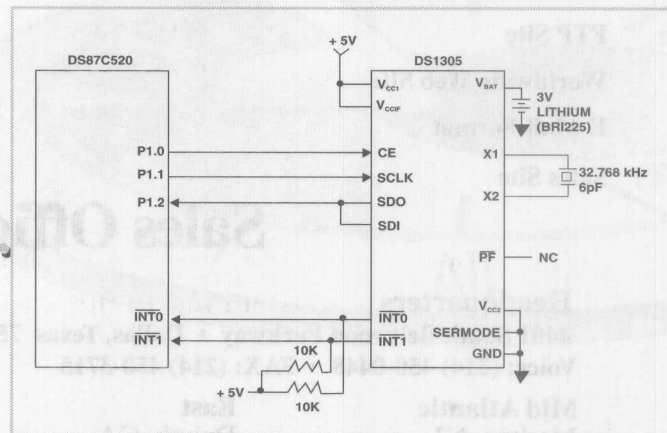
DS1302 with an 8051-Compatible Microcontroller



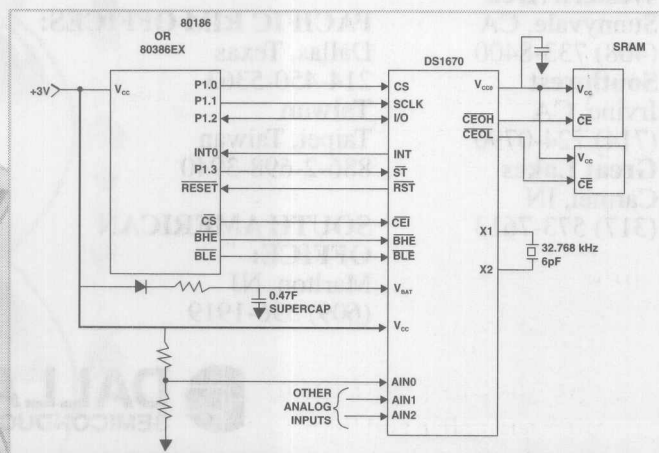
DS1305 with a MC68HC05 Microcontroller and Supercap



DS1306 with a MC68332 Microcontroller



DS1305 with an 8051-Compatible Microcontroller



DS1670 with an 80186 or 386EX Microprocessor